

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): An image processing device for processing image data using image data and image generation record information that is associated with the image data and that includes at least information relating to shooting conditions at the time of generation of the image data, the image processing device comprising:

an image quality adjuster that, if the image generation record information contains light source information relating to color shift of a light source at the time of generation of the image data, is able to execute white balance adjustment process of the image data based on color of the light source obtained using the light source information, the image quality adjuster adjusting magnitude of the white balance adjustment process based on hue of the light source,

wherein the white balance adjustment process includes:

(i) a process of analyzing pixel values of a pair of pixels making up the image data to determine an amount of color cast indicating deviation of hue of the image data from gray;

(ii) a process of determining an amount of the white balance adjustment process based on the amount of color cast; and

(iii) a process of executing the white balance adjustment process in accordance with the determined amount;

wherein the magnitude of the white balance adjustment process is adjusted by adjusting, based on the hue of the light source, a pre-selected processing parameter used in at least one of the processes (i) and (ii), and

wherein the image quality adjuster establishes a condition for selecting pixels for the analysis from among all pixels making up the image data, the condition including that saturation of a pixel is equal to or less than a saturation threshold value, the saturation threshold value being large in a case where hue of the pixel is within a partial range of hue compared to a case where the hue of the pixel is outside the partial range of hue, the partial range of hue including the hue of the light source obtained using the light source information.

Claims 2-4 (Canceled).

Claim 5 (Currently Amended): An image processing device for processing image data using image data and image generation record information that is associated with the image data and that includes at least information relating to shooting conditions at the time of generation of the image data, the image processing device comprising:

an image quality adjuster that, if the image generation record information contains light source information relating to color shift of a light source at the time of generation of the image data, is able to execute white balance adjustment process of the image data based on color of the light source obtained using the light source information, the image quality adjuster adjusting magnitude of the white balance adjustment process based on hue of the light source,

wherein the white balance adjustment process includes:

(i) a process of analyzing pixel values of a pair of pixels making up the image data to determine an amount of color cast indicating deviation of hue of the image data from gray;

(ii) a process of determining an amount of the white balance adjustment process based on the amount of color cast; and

(iii) a process of executing the white balance adjustment process in accordance with the determined amount;

wherein the magnitude of the white balance adjustment process is adjusted by adjusting, based on the hue of the light source, a pre-selected processing parameter used in at least one of the processes (i) and (ii), and

wherein the image quality adjuster subjects a process parameter representing a proportion of an amount of the white balance adjustment process to an amount of the color cast, to cause adjustment in such a way that the process parameter is large in a case where a shifted hue in the image data is within a partial range of hue compared to a case where the shifted hue in the image data is outside the partial range of hue, in order to adjust the magnitude of the white balance adjustment process, the partial range of hue including the hue of the light source obtained using the light source information.

Claim 6 (Previously Presented): An image processing device according to claim 5 wherein the image quality adjuster selects for the analysis pixels approximating achromatic color in the image data.

Claim 7 (Previously Presented): An image processing device according to claim 5 wherein the image quality adjuster selects for the analysis pixels excluding pixels of predetermined hue.

Claim 8 (Previously Presented): An image processing device according to claim 1 wherein the image quality adjuster is able to determine whether the color balance of the image data was adjusted according to user instruction at the time of generation of the image data, and if determined to have been adjusted according to user instruction, the image quality adjuster executes the white balance adjustment process using a lower magnitude than if the determination had not been made.

Claim 9 (Currently Amended): An output device for outputting an image using image data and image generation record information that is associated with the image data and that includes at least information relating to shooting conditions at the time of generation of the image data, the output device comprising:

an image quality adjuster that, if the image generation record information contains light source information relating to color shift of a light source at the time of generation of the image data, is able to execute white balance adjustment process of the image data based on color of the light source obtained using the light source information, the image quality adjuster adjusting magnitude of the white balance adjustment process based on hue of the light source; and

an image output unit for outputting an image according to the image quality-adjusted image data,

wherein the white balance adjustment process includes:

(i) a process of analyzing pixel values of a pair of pixels making up the image data to determine an amount of color cast indicating deviation of hue of the image data from gray;

(ii) a process of determining an amount of the white balance adjustment process based on the amount of color cast; and

(iii) a process of executing the white balance adjustment process in accordance with the determined amount;

wherein the magnitude of the white balance adjustment process is adjusted by adjusting, based on the hue of the light source, a pre-selected processing parameter used in at least one of the processes (i) and (ii), and

wherein the image quality adjuster establishes a condition for selecting pixels for the analysis from among all pixels making up the image data, the condition including that saturation of a pixel is equal to or less than a saturation threshold value, the saturation threshold value being large in a case where hue of the pixel is within a partial range of hue compared to a case where the hue of the pixel is outside the partial range of hue, the partial range of hue including the hue of the light source obtained using the light source information.

Claim 10 (Currently Amended): An image processing method for processing image data using image data and image generation record information that is associated with the image data and that includes at least information relating to shooting conditions at the time of generation of the image data, the method comprising the step of:

if the image generation record information contains light source information relating to color shift of a light source at the time of generation of the image data, executing white balance adjustment process of the image data based on color of the light source obtained using the light source information, the executing including adjusting magnitude of the white balance adjustment process based on hue of the light source,

wherein the white balance adjustment process includes:

- (i) a process of analyzing pixel values of a par of pixels making up the image data to determine an amount of color cast indicating deviation of hue of the image data from gray;
- (ii) a process of determining an amount of the white balance adjustment process based on the amount of color cast; and
- (iii) a process of executing the white balance adjustment process in accordance with the determined amount;

wherein the magnitude of the white balance adjustment process is adjusted by adjusting, based on the hue of the light source, a pre-selected processing parameter used in at least one of the processes (i) and (ii), and

wherein the executing establishes a condition for selecting pixels for the analysis from among all pixels making up the image data, the condition including that saturation of a pixel is equal to or less than a saturation threshold value, the saturation threshold value being large in a case where hue of the pixel is within a partial range of hue compared to a case where the hue of the pixel is outside the partial range of hue, the partial range of hue including the hue of the light source obtained using the light source information.

Claim 11 (Currently Amended): A computer program stored on a computer readable medium for causing a computer to execute processing of image data using image data and image generation record information that is associated with the image data and that includes at least information relating to shooting conditions at the time of generation of the image data,

the computer program causing a computer to execute a function that, if the image generation record information contains light source information relating to color shift of a light source at the time of generation of the image data, is able to execute white balance adjustment process of the image data based on color of the light source obtained using the light source information, the function causing the computer to adjust magnitude of the white balance adjustment process based on hue of the light source,

wherein the white balance adjustment process includes:

(i) a process of analyzing pixel values of a pair of pixels making up the image data to determine an amount of color cast indicating deviation of hue of the image data from gray;

(ii) a process of determining an amount of the white balance adjustment process based on the amount of color cast; and

(iii) a process of executing the white balance adjustment process in accordance with the determined amount;

wherein the magnitude of the white balance adjustment process is adjusted by adjusting, based on the hue of the light source, a pre-selected processing parameter used in at least one of the processes (i) and (ii), and

wherein the function causes the computer to establish a condition for selecting pixels for the analysis from among all pixels making up the image data, the condition including that saturation of a pixel is equal to or less than a saturation threshold value, the saturation threshold value being large in a case where hue of the pixel is within a partial range of hue compared to a case where the hue of the pixel is outside the partial range of hue, the partial range of hue including the hue of the light source obtained using the light source information.

Claim 12 (Canceled).